



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,747	03/22/2004	Shien-Yang Wu	24061.200 (TSMC2003.1585)	9581
42717	7590	09/16/2005	EXAMINER	
HAYNES AND BOONE, LLP 901 MAIN STREET, SUITE 3100 DALLAS, TX 75202			PRENTY, MARK V	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/805,747

Applicant(s)

WU ET AL.

Examiner

MARK PRENTY

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-16 and 18 is/are rejected.
- 7) ☒ Claim(s) 9 and 17 is/are objected to.
- 8) ☒ Claim(s) 19-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date March 22, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This Office Action is in response to the response filed on September 7, 2005.

The AG and AH (i.e., "Other Prior Art") references cited in the Information Disclosure Statement filed on March 22, 2004 have not been considered because they are not in the PTO file.

Applicant's election with traverse of Group I, claims 1-18, is acknowledged. The traversal is on the ground that "the embodiments delineated by the Examiner are not patentably distinct." This is not found persuasive because the traversal does not address the restriction requirement's explanation that the two inventions are patentably distinct because the process as claimed can be used to make another materially different product.

The requirement is still deemed proper and is therefore made FINAL.

Claims 19-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

The specification is objected to for disclosing (in paragraph [0008]): "In an embodiment shown in FIGURE 4, the silicide layer width, W_1 , is preferably two to three times larger than the contact width, W_3 , and the metal line width, W_2 , is preferably at least four to eight time[s] larger than the contact width," because Fig. 4 illustrates that W_1 is larger than W_2 (whereas the specification discloses that W_2 is larger than W_1). Clarification/correction is required.

Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claims 4 and 5 are unclear in reciting

that the first and second metal lines are wider than the silicide element (see the above objection to the specification).

Claims 1-3, 6-8 and 11-16 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent 6,661,330 to Young.

With respect to independent claim 1, Young discloses a fuse (see the entire patent, including the Fig. 5F disclosure, for example) comprising: a silicide element 815 disposed above a substrate 805; a first terminal contact 875 coupled to a first end of the silicide element; a first metal line 890 disposed above the silicide element and coupled to the first terminal contact; a plurality of second terminal contacts 870 coupled to a second end of the silicide element; a second metal line 890 disposed above the silicide element and coupled to the plurality of second terminal contacts; and the silicide element having a sufficient width that a programming potential applied across the first and second metal lines causes a discontinuity in the first terminal contact.

Claim 1 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 2, Young's fuse further comprises a polysilicon layer 810 below the silicide element.

Claim 2 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 3, Young's fuse further comprises an active region disposed below the silicide element (see column 5, lines 17-30).

Claim 3 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 6, a cross-sectional area of Young's first terminal contact 875 is significantly less than a cross-sectional area of the silicide element 815.

Claim 6 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 7, a cross-sectional area of Young's first terminal contact 875 is significantly less than a combined cross-sectional area of the plurality of second terminal contacts 870.

Claim 7 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 8, Young's first terminal contact 875 and the plurality of second terminal contacts 870 comprise metal (see column 9, lines 57-64).

Claim 8 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to independent claim 11, Young discloses a semiconductor fuse (see the entire patent, including the Fig. 5F disclosure, for example) comprising: a silicide strip 815 disposed above a substrate 805; a first terminal contact 875 electrically coupled to a first end of the silicide strip; a plurality of second terminal contacts 870 electrically coupled to a second end of the silicide strip; the silicide strip having a sufficient width that a programming potential applied across the first terminal contact and the plurality of second terminal contacts causes an increased resistance across the first terminal contact and the plurality of second terminal contacts.

Claim 11 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 12, Young's fuse further comprises a polysilicon layer 810 below the silicide element.

Art Unit: 2822

Claim 12 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 13, Young's fuse further comprises an active region disposed below the silicide element (see column 5, lines 17-30).

Claim 13 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 14, a cross-sectional area of Young's first terminal contact 875 is significantly less than a cross-sectional area of the silicide element 815.

Claim 14 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 15, a cross-sectional area of Young's first terminal contact 875 is significantly less than a combined cross-sectional area of the plurality of second terminal contacts 870.

Claim 15 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

With respect to dependent claim 16, Young's first terminal contact 875 and the plurality of second terminal contacts 870 comprise metal (see column 9, lines 57-64).

Claim 16 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Young.

Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 6,661,330 to Young together with United States Patent 6,642,601 to Marshall et al. (Marshall, cited in the Information Disclosure Statement filed on March 22, 2004).

Claim 10 and 18 depend on independent claims 1 and 11, respectively, which are rejected under 35 U.S.C. 102(e) as being anticipated by Young (see above). The above rejection of independent claims 1 and 11 under 35 U.S.C. 102(e) as being

Art Unit: 2822

anticipated by Young is hereby incorporated by reference into this rejection of dependent claims 10 and 18 under 35 U.S.C. 103(a) as being unpatentable over Young together with Marshall.

The difference, therefore, between claims 10/18 and Young is the claimed fuses further comprise a programming transistor.

Marshall teaches that fuses are conventionally programmed by a transistor (see the Fig. 1 disclosure).

It would have been obvious to one skilled in the art to provide Young's fuse with a programming transistor because Marshall teaches that fuses are conventionally programmed by a transistor.

Claims 10 and 18 are thus rejected under 35 U.S.C. 103(a) as being unpatentable over Young together with Marshall.

Claims 9 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not disclose the allowable semiconductor fuse taken as a whole, including the contacts.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

Mark V. Prenty
Mark V. Prenty
Primary Examiner